NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

BEDDING

(Acre)

CODE 310

DEFINITION

Plowing, blading, or otherwise elevating the surface of flat land into a series of broad, low ridges separated by shallow, parallel channels.

PURPOSES

This practice may be applied as part of a resource management system to support one or more of the following:

- Provide improved surface drainage at relatively low cost
- Minimize water ponding
- Provide gradients for removing runoff
- Permit efficient operation of tillage and harvesting equipment
- Eliminate sources for mosquito production.

This practice is accomplished by moving soil toward the center of beds to form a series of ridges and dead furrows (troughs) in the direction of the available slope.

CONDITIONS WHERE PRACTICE APPLIES

This practice involves shaping land surfaces as an initial construction operation or by farm equipment during several farming (plowing) operations.

This practice applies to poorly drained areas of flat to nearly flat land usually having slowly permeable soils. It is generally applicable where land use does not warrant more intensive drainage. Soils must be of sufficient depth to provide a satisfactory root zone after bedding.

CRITERIA

General criteria applicable to all purposes

Bedding shall run in the direction of available land slope so that drainage can be provided without causing harmful erosion. Bedding is usually established without detailed engineering surveys, however topographic type field surveys may be necessary to establish design and layout.

Beds shall be shaped and cross-row ditches provided where required to provide free movement of water from the crown to the dead furrow. Crowns shall provide a cross slope of not less than 0.3 percent.

Crown height, width, and maximum length of beds shall be determined on the basis of site conditions.

Dead furrow channels may be shallow and side slopes steep or flat, based on the depth of the soil, crops grown, and local construction and maintenance methods. Dead furrows shall be graded toward an outlet.

An outlet, natural or constructed, must have sufficient capacity and depth to provide for timely removal of water from dead furrows.

CONSIDERATIONS

Water Quantity

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.

2. Potential for a change in rates of plant growth and transpiration because changes in the volume of soil water.
3. Effects on downstream flows or aquifers that would affect other water uses or users.
4. Effects on the relation of the soil surface to the water table to ensure that a suitable rooting depth for crops.

Water Quality

1. Effects on erosion and the movement of sediment and soluble and sediment-attached substances carried by runoff.
2. Effects on the use and management of nutrients and pesticides and their effect on surface and ground water quality.
3. Effects on the movement of dissolved substances below the root zone and to ground water.
4. Effects of water levels on soil processes such as nutrient use by the plant.
5. Effects on wetlands or water-related wildlife habitats.
6. Effects on the visual quality of downstream water.

PLANS AND SPECIFICATIONS

Plans and specifications for bedding shall be in keeping with this standard and shall describe the essential requirements for properly applying the practice to achieve its intended purpose.

If beds are formed with normal on-farm type equipment, it may take 2 to 3 years to complete beds to the required height.

Practice installation specification items specific to the project should be listed on the "Construction Requirement Worksheet".

OPERATION AND MAINTENANCE

An Operation and Maintenance plan must be prepared for use by the landowner or operator responsible for ditch and canal operation and maintenance. The plan should provide specific instructions for operating and maintaining the lining to insure it functions properly. Minimum requirements to be addressed in the Operation and Maintenance Plan are:

1. Prompt repair or replacement of damaged components is necessary. Remove foreign materials and vegetation that can interfere with proper lining operation.
2. Maintain vigorous vegetative growth where applicable.
3. Control rodents to help prevent damage.

List items specific to this project on the “Operation and Maintenance Worksheet”.

REFERENCES

USDA NRCS, National Engineering Field Handbook for Conservation Practices, Chapter 14.

USDA NRCS, National Engineering Handbook, Part 624 (previously Section 16), Drainage of Agricultural Lands.